DOCUMENT RESUME

ED 103 534 UD 014 907

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TITLE A Cost Study Analysis of Measured Gains in a Reading Program Utilizing Individualization of Instruction.
PUB DATE Dec 74
NOTE 92p.; Ph.D. Dissertation, Florida State University

EDRS PRICE MF-$0.76 HC-$4.43 PLUS POSTAGE
DESCRIPTORS Achievement Gains; Class Management; Compensatory Education Programs; *Cost Effectiveness; Disadvantaged Youth; *Elementary School Students; *Individualized Instruction; Low Achievers; *Program Evaluation; Reading Achievement; *Reading Programs; Teaching Methods
IDENTIFIERS Elementary Secondary Education Act Title I; ESEA Title I; Georgia

ABSTRACT

The problems stated for this study were: (1) to determine the additional cost per month of reading gain in the Dougherty County reading program--funded under Title I of the 1965 Elementary Secondary Education Act--for elementary students (grades 1-6); (2) to compare the previous cost per month of gain for students enrolled in the Title I program with cost per month of gain in innovative reading activities; and (3) to determine the rate of increase in reading growth which may be attributed to the Title I program in Dougherty County, Georgia, 1973-74. Subjects included 1,120 students in 12 elementary schools in Dougherty, Georgia, who were enrolled in a Title I reading project utilizing the center concept and individually prescribed instruction with 13 teachers and 13 aides. Since these students were pulled from the bottom of the lowest academic strata there was no control group available for comparison; therefore, history of previous gain as calculated from the pretest means was used as a basis for determination of difference. Teachers were trained and supervised throughout the school year in both reading skills and management techniques. All data indicated significant improvement in the ratio of reading gains for all grade levels. It was concluded that it cost less to teach better when cost is based on amount of reading gain per dollar expenditure. (Author/JM)

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THE FLORIDA STATE UNIVERSITY

COLLEGE OF EDUCATION

A COST STUDY ANALYSIS OF MEASURED GAINS IN A READING PROGRAM UTILIZING INDIVIDUALIZATION OF INSTRUCTION

By
VIRGINIA RICHARDSON MORGAN

A Dissertation submitted to
the Divison of Instructional Design and Personnel Development
Program of Language Education
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

UD 014907

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A COST STUDY ANALYSIS OF MEASURED GAINS IN A READING PROGRAM UTILIZING INDIVIDUALIZATION OF INSTRUCTION

(Publication No.)

Virginia Richardson Morgan, Ph.D.
The Florida State University, 1974

Major Professor: Edwin H. Smith

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Subjects included 1120 students in twelve elementary schools in Dougherty County, Georgia, who were enrolled in a Title I reading project utilizing the center concept and individually prescribed instruction with thirteen teachers and thirteen aides. Since these students were pulled from the bottom of the lowest academic strata there was no control group available for comparison; therefore, history of previous gain as calculated from the pre test means was used as a basis for determination of difference.

Teachers were trained and supervised throughout the school year in both reading skills and management techniques. Materials chosen for the labs were mostly programmed or self-instructional in design such as the Sound Reading Program, Sullivan Reading Programs, and Educational Progress Materials, though free reading materials were also used.

All data indicated significant improvement in the ratio of reading gains at the .01 Alpha level or better for all six grade levels, treated separately, using the correlated "t" test comparing the means on pre and post tests utilizing as instruments the Gray Oral Reading Test, the Slosson Oral Reading Test, and CREAD by California Testing Bureau after eight months of treatment, five days per week fifty minutes per day.

Cost per month of regular school language arts program was computed at $16.00 per month, and special treatment was calculated at a cost of $24.38 per month. Mean gains per month were computed on pre and post tests to determine both the history of gain per month and the gain per month of treatment. Treating each test separately and each grade level separately all data indicated that, though special individualized treatment with lowered pupil-teacher ratio and the addition of an aide in each classroom including intense supervisory and consultant support did, in fact, cost more per month of operation, however, it was cheaper per month of student gain. (It will be noted that one group of twenty seven third grade students did not bear out the cost data as it was their second

year of treatment and their mean scores were already grade level in September of 1973.) A conclusion which can be drawn from these data is; that it cost less to teach better when cost is based upon amount of reading gain per dollar expenditure.

To Mother,
Claire, and J. Tom
with love

ACKNOWLEDGMENTS

The writer wishes to express sincere appreciation to her major professor, Dr. Edwin H. Smith, who has worked so closely with her to develop the program design which was a basis for this study. Further appreciation is due to him and other members of the committee--Dr. George Aker, Dr. Billy Guice, and Dr. Glennon Rowell for their guidance, encouragement, and suggestions. Without their support, this effort would have been impossible.

The author is also extrememly grateful to the Dougherty County Title I staff and the project consultants, Dr. Edwin Smith, Dr. George Mason, Dr. Robert Palmatier, and Dr. A. Walden Ends, who continue to work so faithfully to implement change in order to improve education for students in the classroom. This study shows positive results because of their support and dedication to our profession.

Here, too, the author wishes to say "thank you" to the Delta Kappa Gamma Society which awarded her an international scholarship which was most helpful in providing the means for study in this area.

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CHAPTER I

INTRODUCTION

The pupose of this study was to determine the cost per grade level of reading achievement of elementary students enrolled in a Title I reading project during the 1973-74 school year utilizing the center concept and individually prescribed instruction.

Cost-quality studies in education are not new. For example, the Committee on Tax Education and School Finance, National Education Association, observed that there is evidence that the quality of the educational program as a whole and of teaching procedures is generally rated higher by trained observers in the school systems that spend the most money.[1] This does not imply that spending more money will automatically produce better learning for students. Efficient organization and utilization of resources are vital to educational improvement.

The Federal government, under funding provided by Public Law 89-10 "Elementary and Secondary Education Act, Title I", has, for nearly a decade, provided large sums of money for the purpose of upgrading academic achievement for

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[1]Stephen J. Knezevich, Administration of Public Education (New York: Harper and Row Publishers, 1962), p. 426.

the educationally deprived. A chief thrust of these expenditures has been the development and the improvement of reading skills for disadvantaged students in kindergarten through high school. However, studies indicate that the positive cost-quality relationships do not hold up with the socially disadvantaged segment of the student population. Further analyses of gains related to Title I investments have brought such poor results as to bring forth many opponents of Federal financial support for compensatory education. These reports may only indicate that more dollars, in and of themselves, do not necessarily improve the educational product.

A 1971 study by Rand Corporation, How Effective is Schooling?, concluded that virtually without exception, all of the large surveys of the large national compensatory education programs have shown no beneficial effects. This study did point out that some carefully designed intervention programs had evidenced positive gains in student cognitive achievement. The Rand study also indicated that successful intervention programs varied in per-pupil costs from $200 up, with the feasible range of these programs being between $250 and $350. Even so, they did not find level of funding a sufficient condition for success nor did these data relate cost to student gains per month.[1]

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[1]Seymour Holzman and Shirley Boes, Compensatory Education: What Works to Help Disadvantaged Pupils (Arlington, Va.: National School Public Relations Association, 1973), p. 54.

Though a number of compensatory programs offer hard evidence of their success: (The Juan Morel Campos Billingual Center, Chicago; Project Mors, Leonminster, Massachusetts; Diagnostic Reading Clinics, Cleveland, Ohio; Remedial Reading Laboratories; Project Early Push, Buffalo, New York)[1], generally such projects have failed to produce sufficient student gain for the amount of money expended.

Being aware of common failures to really improve educational quality, an innovative program of individualized instruction was devised to include appropriate teacher training, consultant services, supervision, instructional materials and delivery systems with emphasis upon student gains and cost feasibility in needed reading skill areas. It is this program that this researcher chose to investigate.

The Problem

The major purposes of this study were as follows:

1. To determine the additional cost per month of reading gain in the Dougherty County Title I reading program for elementary students (grades 1 through 6.)
2. To compare the previous cost per month of gain for students enrolled in the Title I program with cost per month of gain in innovative reading activities.
3. To determine the rate of increase in reading growth which may be attributed to the Title I program in Dougherty County, Georgia, 1973-74.

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[1]Ibid., p. 31-41.

Significance of the Problem and Need for the Study

The reading deficiencies of the socially and economically disadvantaged have been documented in studies across the nation. In Dougherty County, standardized test scores revealed that this segment of the population evidenced severe academic disabilities when compared to national and local norms. Systemwide testing at sixth grade level showed that the mean gain per year for the total population of Dougherty County's Title I schools is only .67 as measured by the California Achievement Tests. The lower group of this population evidenced mean gains of less than half that amount, or approximately .3 year gain per year of instruction.

There is a dire need for more effective methods and materials in the teaching of reading. In particular, more effective and relatively inexpensive means of teaching the disadvantaged must be found in order to improve the learning situation for students. As individualization of instruction is recognized for more effective teaching of reading skills, it is imperative that management design and resources be developed and utilized in a manner that is cost feasible in the ordinary school budget.

If a classroom organization can be provided to create a situation for individualization of instruction which can produce significant gains over other approaches at a feasible cost per month of gain, then there is reason to believe that such programs could effectively span the learning gap for the disadvantaged. In addition, if such programs

are financially feasible for local school boards to carry on within regular budget, then educators should be made aware of such successful approaches that might be used to replace traditional instructional techniques which have failed to produce positive results. For many years curriculum designers have been adding more of the same and achieving the same negative results with this population; therefore, innovative programs must be designed to produce positive gains.

Definition of Terms

1. CREAD Form A. -- A California reading achievement test published in 1970, including five basic levels which may be used in group testing of students, grades 1.5 through 12.0, in determining grade equivalent scores in reading vocabulary and comprehension. These are timed, machine scorable instruments used to determine group progress. The ranges of the five levels are as follows: Level 1, from grade level 0.6 through 8.9; level 2, from grade 0.6 through 13.6; level 3, from 0.6 through 13.6; level 4, from 0.6 through 13.6; level 5, from 0.6 through 13.6. Suggested levels for administration are as follows: Level 1, grades 1.5 through 2.0; level 2, 2.0 through 4.0; level 3, 4.0 through 6.0; level 4, 6.0 through 9.0; level 5, 9.0 through 12.0. There are also available equivalent tests in form B.[1]

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[1]Ernest W. Tiegs and Willis W. Clark, Test Coordinator's Handbook, (Monterey, Cal.: CTB/McGraw-Hill, 1970), p. 13.

2. Gray Oral Reading Test. -- An individually administered test developed to provide a means of analyzing the oral reading performance of students grades one through adult level. This test is constructed of thirteen passages each in increasing order of difficulty of vocabulary, syllabic length of words, length and complexity of the structure of sentences, and maturity of concepts. The content of each passage deals with a theme or event which is related to known general interests of subjects at these levels.[1]

3. Individualized Instruction. -- Diagnostic-prescriptive instruction in which each student works at his own rate in materials and activities appropriate to his needs under constant teacher and teacher aid supervision and evaluation.

4. Linguistically-Based Reading Program. -- A reading program that teaches the student the more common graphemic option for each phoneme and which utilizes a variety of syntactical patterns.

5. Programmed Instruction Materials. -- Materials which break subject matter or skills into small learning units. Responses are called for in connection with each unit and answers are provided to which the student may refer immediately after making each response. Programmed material may take the form of separate work sheets, cards,

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[1]Helen M. Robinson, Manual of Directions for Administering Scoring, and Interpretation, Revised. (Indianapolis, Ind.: Bobbs-Merrill Co., Inc., 1967), p. 3.

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tablets, workbooks, and textbooks.[1]

6. Reading. -- The process of comprehending the meaning of written or printed communication.[2]

7. Self-Instructional Materials. -- Materials designed to provide reinforcement and feedback for individual learning which utilize a minimum amount of teacher time for actual instruction.

8. Slosson Oral Reading Test. -- An individually administered test developed to determine student's reading level by measurement of sight vocabulary including two hundred words from primer to high school. The oral reading test is based upon the student's ability to recognize and pronounce words at different levels of difficulty. The words were chosen from basal readers and the reading level obtained from testing represents median or standardized school achievement. A correlation of .96 was obtained with the standardized Gray Oral Reading Test.[3]

9. Title I School. -- A school which serves a geographic population which evidences a level of poverty which is as dense or denser than the average poverty level within

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[1]Smith, Nila B., Reading Instruction for Today's Children, (Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1963), p. 15.

[2]Paul R. Hanna, Richard E. Hodges, and Jean S. Hanna, Spelling: Structure and Strategies, (New York: Houghton Mifflin Company, 1971), p. 262.

[3]Richard L. Slosson, Slosson Intelligence Test for Children and Adults, East Aurora, N.Y.: Slosson Educational Publications: 1963), p. 1.

the total school system. In Georgia, this criteria is based upon aid for dependent children data provided to each system by the Department of Human Resources.

10. Title I Student. -- A pupil in a Title I school who evidences severe academic disability but shows some evidence that he can learn.

Assumptions

In designing, instituting, and analyzing this study the following assumptions will be made:

1. The population used in this study is representative of disadvantaged elementary school students living in urban areas in South Georgia.
2. The Slosson Oral Reading Test is a valid instrument for determining reading placement and evaluation of disadvantaged students when given by teachers specially trained in its administration to disadvantaged children.
3. The Gray Oral Reading Test is a valid instrument for determination of placement and evaluation of disadvantaged students when given by teachers specially trained in its administration to disadvantaged children.
4. The California Reading Achievement Test is a valid instrument for assessing group progress in reading when given by teachers specially trained in its administration.
5. The reading growth of this population without specific supplementary treatment would have been similar to the mean annual reading growth for this population preceding special treatment.

Limitations of the Study

1. The population for this study was drawn from a representative South Georgia urban lower socio-economic group.
2. Achievement norms for this population were significantly lower than national norms.
3. The population consisted of educationally disadvantaged children; therefore, the results of this study should only be projected to similar populations.
4. The study was limited to the most academically disadvantaged students enrolled in grades one through six, ages six through thirteen, in twelve Title I schools in Dougherty County, Georgia.
5. The study was limited to only one academic year, (1973-'74) of implementation of a highly individualized program in the laboratory setting.

CHAPTER II

REVIEW OF THE LITERATURE

This review of literature is structured as follows: (1) Cost-effectiveness analysis, (2) self instructional materials, and (3) compensatory education.

Cost-Effectiveness

Studies by Professor Paul R. Mort and his colleagues which date back as far as 1925, have attempted to relate resource input to educational output. When Dr. Mort was asked, "Will money alone solve the school problem?" He replied, "We will never know because no one would ever be fool enough to try it."[1] Nevertheless, education represents a major economic investment for our society and deserves evaluative analysis in order to design effective educational programs at a feasible cost.

Cost accounting is an integral portion of both cost-benefit and cost-effectiveness analysis. The cost accounting function includes identification, categorization, and calculation of resources needed (or used) to support education.[2]

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[1] Roe L. Johns and Edgar L. Morphet. Financing the Public Schools. (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), p. 95.

[2] G. Roger Sell, Dale G. Hamreus, and Harold McAlbee. Appendix W--Cost Analysis in Teacher Education Programs, (Portland, Oregon: Northwest Regional Educational laboratory, 1968.)

Cost accounting operations should include the following: (1) A financial plan integrated with an educational plan; (2) control accounts; (3) receipt accounts; (4) expenditure accounts: (5) subsidiary accounts; (6) original documents; and, (7) financial reports.[1]

These accounting operations can provide data which can be used in comparing alternative educational systems or programs. The cost-accounting function is primarily designed to control and account for funds; therefore, the design of procedures in cost accounting should first reflect this function.

The comparison of cost--the investment of resources --and financial benefits of a system is referred to as a cost-benefit analysis. Prest and Turvey described cost-benefit analysis as a way of assessing desirability of programs where one needs to take a long and wide range view. They further state that cost-benefit analysis is "to maximize the value of all benefits less that of all costs subject to constraints."[2]

Cost-effectiveness analysis is the measurable results of the operation of a system or program. Cost-effectiveness is further defined as relating to the fulfillment of short range objectives and criteria which will usually be short-

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[1] Idem, Financing Public School (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), pp. 453-454.

[2] A.R. Prest and R. Turvey. "Cost Benefit Analysis: A Survey," Economic Journal, 85, (December, 1955) pp. 684-685.

range in nature. For example, data may include test-scores, number of drop-outs and/or graduates, or initial employment.[1]

Knezevich uses the terms "cost-utility analysis," "cost-benefit analysis," "systems analysis," and "operations analysis" synonymously. He further states that the primary contributions of such analyses, regardless of semantics, is one solution to a specific resource allocation problem. It is simply a method of viewing the problem, but it is not a substitute for the judgement necessary in choosing among alternatives or for quantitative analysis.[2]

Though the systems approach to educational management and financial decision-making has been explored, few if any have been validated with all variables considered. The pressure to make education accountable in the area of expenditures and to improve methods in school operations is considerable. Methods which are available show promise but need refinement.

Reading instruction is a high priority within the nation. Resource requirements for various approaches vary widely. There is a plethora of available designs, materials, and equipment. Only with careful statements of objectives, management, and evaluation can it be determined if any

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[1]Richard, H.P. Kraft. Cost-Effectiveness Analysis of Vocational Technical Programs, (Tallahassee, Fla.: Educational Systems and Planning Center. Florida State University, 1959), p. 59.

[2]Stephen J. Knezevich, Administration of Public Education, (New York: Harper and Row, Publishers, 1969), pp. 557-558.

approach to the teaching of reading is effective, as related to student progress, and feasible, as relates to expenditure for gain.

ERIC searches proved that there have been many studies of program cost per student, and the Rand Corporation in its December, 1971, study found that cost feasibility of successful programs ranged from $250 to $350 per student but did not relate these data to student per month reading gains.[1]

Regardless of the enormous and complicated studies and systems analyses developed for educational planning and evaluation, the process can be simplified by the development of specific, measurable objectives, careful bookkeeping and management, and evaluation related to those objectives.

Self Instructional Materials

It is difficult to trace the history of self-instructional materials because no one is sure who first invented the notion of "gaming", teaching machines, simulation devices, and the varieties of programming for individualized instruction. The Encyclopedia of Educational Research notes that Eure (1959) and McHugh (1967) traced the history of war gaming as an instructional device back to 1887 when it was used for instruction at the Naval War College.

The Encyclopedia further states that The Air Force Office of Scientific Research has sponsored research and

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[1] Idem, Compensatory Education, (Arlington, Va.: National School Public Relations Association, 1973), p. 54.

Development of Programmed Instruction. An evaluation of Phase I, in which three hundred people had been trained in techniques of programmed instruction and one hundred and fifty programmed packages had been produced, showed that test scores of ninety per cent or above were achieved by participants and that training time had been reduced by twenty-five to fifty per cent.[1]

The contributions of the armed forces to research in education and training have been brought about by utilizing a combination of structured environment and a firm requirement for economy of operation. These factors, along with systematic experimentation and collection of data have provided a useful laboratory for research in education.[2]

Though teaching machines or "educational game devices" date back to the late nineteenth century, it is generally agreed that pioneer work in the field of education was done by Sydney L. Pressey at Ohio State University. In fact, the first published article which made reference to a teaching machine was written by Pressey and printed in School and Society in 1926.[3] Pressey's machine was a multiple-choice reaction device which was used for drill, test scoring

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[1] Encylcopedia of Educational Research, 4th ed., s.v. "Military Education," by James C. Shelborne, Kenneth J. Groves, and Leland D. Brokaw, p. 853.

[2] Ibid. p. 855.

[3] Edward B. Fry, Teaching Machines and Programmed Instruction. (New York: McGraw Hill Book Co., 1963), p. 17.

and administration.[1] It was B.F. Skinner who expanded the concepts implied in Pressey's work i.e. such machines could offer to the student enough reward or reinforcement, often enough or strongly enough to meet criteria of effective learning.[2]

Another principle which was sponsored by Skinner and his followers is that emission of response or reconstruction of data is more effective in learning than simple recognition; therefore, they prefer constructed response to multiple choice programs.[3]

These studies were attractive to educators who were searching for more effective methods of liberating teachers to allow for more individualized instruction in the classroom. Though some opponents view the use of self-instructional materials and equipment as highly impersonal teaching, they can be utilized in effective teaching strategies to actually teach each child what he needs, when he needs it.

The seemingly sudden appearance of programmed instruction in the 1950's was a result of both a product of education and psychology. Though Skinner is often credited with the discovery of the basic psychological tenents of programmed

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[1]S.L. Pressey, "Development and Appraisal of Devices Providing Automatic Scoring of Objective Tests and Concomitant Self-Instruction," Journal of Psychology, 29 (1950), pp. 417-47.

[2]B.F. Skinner, "Why We Need Teaching Machines," Educational Technology, ed. by J.P. DeCecco (New York: Holt, Rinehart, and Winston, 1964). pp. 92-112.

[3]Idem, Teaching Machines and Programmed Instruction (New York: McGraw Hill Book Co., 1963), p. 19.

instruction, several other psychologists and educators have written about elements of what today have become the set of ideas known as programmed instruction. Both knowledge and reinforcement, each of which is contingent upon response, were well established by Pavlov, Thorndike, and Hull as important, if not necessary, conditions for learning.[1]

Though programmed instruction may be machine delivered or in paper and pencil format, there are some psychological principles which most are agreed upon. They are as follows:

1. The subject matter is broken into small units, generally called frames.
2. At least part of the frame requires some kind of response from the student.
3. The student is provided with immediate feedback.
4. The units are arranged in careful sequence, gradually leading the student toward desired goals.
5. Programs are aimed at specific goals or objectives.
6. Programs are "student-centered" in that revisions are based upon student responses rather than "expert" determination.
7. The student is usually free to vary progress at his own rate of learning.[2]

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[1] Encyclopedia of Educational Research, 4th Ed., s.v. "Programmed Instruction," by Lawrence M. Stolurow.

[2] Idem, Teaching Machines and Programmed Instruction, (New York: McGraw Hill Book Co., 1963), pp. 2-3.

Studies have compared the use of programmed instruction with the more conventional teaching methods. Peterson in 1931, made the first evaluation of Pressey's teaching machine and found that chemical test cards for self-scoring increased final test scores significantly.[1] Jensen found that superior students in the programmed course generally received higher examination scores than students taught by conventional methods.[2] Roe compared performance of groups learning elementary probability through conventional teaching methods and programmed instruction. Though the students evidenced no significant difference, the groups taught with programmed materials evidenced significantly higher achievement on final examination than those in the conventional learning situation.[3]

In 1934, Little published the results of an experiment which seemed to indicate that the poorer college student was aided more by the teaching machine than was the better student. His measurement was made using a multiple-choice post test. The difference was greater at the first quartile than at the mean, and this difference was greater than the difference at the third quartile. According to

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[1]Idem, Encyclopedia of Educational Research, 4th ed., s.v. "Military Education," p. 1020.

[2]B.T. Jensen, "An Independent Study Laboratory Using Self-Scoring Tests," Journal of Educational Research, 43 (1949), 134-37.

[3]A.A. Roe, "Automated Teaching Methods Using Linear Programs," Journal of Applied Psychology, 44, No. 3 (1962), 198-201.

this test, the students at the lower end of the intelligence scale were helped more by the construct of programming than those at the top.[1] Silberman, in 1961, found that there was a definite and significant relationship between measured intelligence and amount of learning when high school students were taught logical relationships with a four hundred item program using multiple choice answers.[2] Shay (1961) experimented with ninety fourth graders which were taken from three different ability levels as measured by standardized intelligence tests, and taught the use of Roman numerals. He found that intelligence was positively related to the post test scores at the 0.001 level of significance. Though some had predicted that programmed instruction would act as an equalizer of the intelligence factor in learning, research has not borne out the prediction.[3]

Though all research in the area of programmed instruction has not produced significant data, there are quite enough positive results to leave no doubt that students who use it learn. They learn from abduction, linear, mathetics, branched, intrinsic, and idiomophic programming. They learn from programs that are machine delivered and in book form. Using programmed instruction, students of all levels of intelligence have learned the gamut of academic subjects from algebra to zoology.

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[1]Idem, Teaching Machines and Programmed Instruction, New York: McGraw Hill Book Co., (1963) p. 84.

[2]Ibid.

[3]Ibid.

It has proven effective in countries around the world. Today, programmed instruction has proven its performance. Now is the time for educators to learn to use it more effectively.[1]

Compensatory Education

Literature abounds on the education of the "disadvantaged" and suggestions for improving the same, but few studies of compensatory education efforts have really sought to evaluate the effectiveness of the various techniques, methods, and systems which are recommended in the literature.

Probably the most complete descriptive analytic report on compensatory education is now in progress. Rubin, Trismon, Wilder, and Yates are in the process of developing a complete research report pursuant to a contract between Educational Testing Service and U.S.O.E. In Spring, 1972, they took a survey of compensatory reading programs in grades two, four, and six of the U.S. public schools. Though a description of survey techniques and related data is available, a full evaluative report including cost-benefit analyses will not become available for another year.[2]

Though each project and each state must prepare evaluation reports, the design for evaluation in most cases has

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[1] Idem, Encyclopedia of Educational Research, 4th ed., s.v. "Military Education," p. 1020.

[2] Donald Rubin, Donald A. Trisman, and Gita Wilder, Phase I Report, Contract No. OEC-71-3715: A descriptive and Analytic Study of Compensatory Reading Program, (Princeton, N.J.: Educational Testing Service, August 1973).

been questionable. The lack of specific, measurable, educational objectives in many compensatory projects and the required evaluation procedures leave much to be desired in the area of research. Even so, some compensatory intervention projects have made an educational impact upon the target population.

Kasten G. Talmadge reported in 1973, a study of Title I projects in California. The objective of the study was to shed additional light on the cost-benefit and "critical mass" issues which are central to today's compensatory education planning and decision-making. This study included all math and reading programs, grades one through twelve, in all schools in California which had reported both pupil gains and expenditures. Talmadge found that within the saturated schools, those with 75 per cent or more of the pupils eligible for Title I, there was a significant relationship between achievement gains and Title I per pupil expenditures for reading but not for math. The expenditure differences accounted for about ten per cent of the variation in achievement. The unsaturated schools did not show significant gains.[1] The Atlanta Public Schools, reporting in 1972, on an analysis of reading gains in seven public elementary schools in Atlanta, found that reading achievement in the various schools evaluated ranged from those that revealed no specific trends in reading to those in which

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[1]Kasten G. Talmadge, An Analysis of Reading and Mathematics Achievement Gains in California Title I Projects, Fiscal Year, 1972 (Eric Print from Santa Monica, Cal.: System Development Corporation), EDO74189, March, 1973. p. 2.

mean reading gains were approximately one month or better for every month in school for practically every grade level. Variables which may account for difference in success were not reported.[1] Sheila Canning reported in January of 1973, in a survey of the "Right To Read" that this Federal program to eradicate illiteracy had languished for lack of funds and fuzzy planning but finally seemed to be ready to move toward implementation.[2]

Sacramento, California schools developed demonstration programs in intensive reading and mathematics instruction for low achieving seventh, eighth and ninth grade students attending schools in low income areas. School districts wrote projects with specific educational goals. Those which were least cost-effective were terminated. Seventeen projects were approved for 1970-71. Projects were continually evaluated on the basis of several criteria involving program development, student achievement, and cost analysis.[3] This kind of evaluation related to future funding is likely to

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[1] Georgia, Atlanta Public Schools. Pupil Performance in the Elementary Public Schools of Atlanta. Research and Development Report, Volume 5, Numbers 22-25, 27,20,44 and 45, (Eric Print from Santa Monica, Cal.: System Development Corporation. EDO64449, 1972), p. 4.

[2] Sheila Canning, Right to Read (Eric print from Santa Monica, Cal.: Systems Development Corporation, EJ072186, January, 1973), p. 23.

[3] California State Department of Education, Reading and Mathematics Instruction for Low Achieving Students. A Report on Demonstration Programs Intensive Instruction in Reading and Mathematics, 1970-71 (Eric print from Santa Monica: Systems Development Corporation, EDO67428, 1972), p. 25.

have strong effects upon education planning, implementation and monitoring.

A 1971 summary report of compensatory education evaluation and finance drew the following conclusions:

> Virtually without exception, all of the large surveys of the large national compensatory education programs have shown no beneficial results on average. However, the evaluation reports on which the surveys are based are often poor and their research designs suspect.
>
> A number of intervention programs have been designed quite carefully and display gains in pupil cognitive performance, again in the short run. In particular, pupils from disadvantaged backgrounds tend to show greater progress in more highly structured programs.[1]

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[1]Idem, Compensatory Education, (Arlington, Va.: National School Public Relations Association, 1973), p. 54.

CHAPTER III

THE METHOD OF STUDY

This chapter describes the population, procedures, instructional design, equipment and materials, scheduling, instruments for evaluation, hypotheses to be tested, design of the study and collection of data.

Population and Sample

The Dougherty County School System serves a chiefly urban community in the heart of Southwest Georgia. Albany, the metropolitan area of this fast growing community of some 91,000 is the population node of southwest Georgia and includes a large Marine Supply Depot and numerous industries.

This school system includes thirty-five public schools, fifteen of which are identified as Title I. In the 1973-74 school year, these schools enrolled 24,408 students, approximately 60% who were white and 40% black. Of the twenty-three elementary schools, twelve meet Title I criteria. The statewide testing results indicated that Dougherty County's norms in reading are significantly lower than national norms. Systemwide testing at sixth grade level indicated that the total population of Title I Schools had evidenced mean annual gains in reading achievement of .67 of a year. During the 1973-'74 school year 1030 failures and 666 dropouts were reported.

The population used in this study were 1120 first through sixth grade educationally disadvantaged students enrolled in twelve Title I elementary schools in Dougherty County, Georgia. This population is approximately 80% black and 20% white and were drawn from the lower track of those who evidenced severest academic deprivation.

The program subjects were selected from twelve elementary schools on the basis of severity of reading retardation. Those whose needs were greatest were chosen. The population receiving treatment were comprised of approximately 20% of the total population of the twelve Title I elementary schools.

Selection of teachers and paraprofessionals for this study was based upon interest and previous training. Since there were few teachers available with experience in such a highly individualized program as planned, teacher orientation and intensive training were an integral part of the program throughout the school year.

Procedures

The study began in August, 1973, and was completed in May, 1974. Prior to implementation in August, the researcher, along with consultants redesigned a Title I reading project budgeted at less than $250 per student for fifty minutes per day of treatment for 180 school days. The following objectives were established:

a. Given special reading instruction 50 minutes daily for nine months, retarded readers selected from the lowest

groups in grades one through six in twelve Title I elementary schools in Albany, Georgia, will improve in the area of reading achievement as indicated by a mean gain of at least one month per month of treatment as measured by pre and post testing with Gray Oral Reading Test, CREAD, and Slosson Oral Reading Test.

b. Given carefully chosen in-service training and appropriate materials, teachers and teacher aides, under the Title I supervision of the program will develop skills to facilitate the improvement of reading achievement of disadvantaged students in the low groups in Title I elementary schools as measured by pre and post test comparison. Expected mean gain will be at least one month per month of treatment.

c. Given intensive in-service training and supervision designed to meet the needs of disadvantaged students in the area of reading improvement, selected teachers will be able to significantly improve their competencies in classroom management for individualized instruction as evidenced by comparison of pre and post test means.

Procedures for implementation included teacher selection and training, administrative support, instructional design, equipment and materials, scheduling, and evaluation.

Teacher Selection and Training

Thirteen teachers and thirteen teacher aides were selected using as criteria previous training and experience

as well as their own interest in such a program of individualization. Since these teachers and aides evidenced a wide variety of knowledge and abilities in reading instruction and management skills, a program of teacher training and continuous monitoring was devised. Some eighty hours of in-service activities scheduled throughout the school year included workshops in classroom management, the problems of the disadvantaged, and diagnosis and correction of reading difficulties. Over eighty consultant days were spent in classroom observation and critique as well as in afternoon workshops. A full-time reading supervisor, was employed to work daily in the labs to help in carrying out program objectives.

Reading consultants, Dr. Edwin Smith, from the Florida State University, Dr. George Mason, from The University of Georgia, and Dr. Robert Palmatier, also of The University of Georgia were committed for planning, reading instruction, guidance and evaluation throughout the school year. Dr. Walden Ends of The University of Georgia was committed for monthly workshops in the affective domain. Other consultants utilized for their special abilities were Dr. E.R. Braithwaite from The Florida State University and Dr. Ed Merryman from Valdosta State College.

An adequate budget allowed for the committment of outside consultants who worked throughout the in-service activity from planning through final evaluation. Such a

budget also included teacher pay for time spent beyond the Board's expectancy for teachers. (Since specified in-service time is not a part of the teacher's contract, this became a separate budget item.) College course credit was offered for the in-service activity. This, too offered an incentive for effort.

Ideally, content should be sequentially organized to allow for individual teacher concentration in his or her areas of greatest needs. Though some forms of organization such as programmed or modular instruction, (Edwin Smith, unpublished) were available, some supervisors and consultants would have chosen to pull from numbers of sources in order to produce a local construct. If the latter choice had been made there should likely have been a year or more of planning and study to pull together recent research to analyze the data, and to develop a sequential organization for same. This amount of time spent in planning and program development did not seem feasible since the modules developed by Dr. Smith were highly appropriate in meeting the needs of this group of teachers. The Title I in-service program also included maintenance and management sessions held by Dr. Smith, Dr. Mason, and Dr. Palmatier, as well as sessions in group dynamics and interpersonal relationships held by Dr. Ends.

It should also be noted here that content was not geared toward the reading clinician. Often, classroom teachers are given directions in diagnosis, prescription and

correction which are reasonable in the clinical setting but totally ineffective for the classroom teacher who faces twenty students per period; therefore, this in-service activity was geared to the kind of diagnosis and referral of treatment appropriate to the regular classroom teacher.

Specific Content

Content for the areas of diagnosis, prescription, and correction were examined using the following organization: (1) Causes of reading difficulty; (2) Diagnostic-Prescriptive Instruction; (3) Correcting Decoding deficiencies; (4) Correcting word processing difficulties; and, (5) Correcting context processing difficulties. (Edwin Smith, unpublished modules.) Some of the specific content which was considered within these areas is as follows:

Causes of Reading Difficulties

The complexities of the diagnosis of reading difficulties produce for the reading teacher an almost impossible task. Though determining the level of achievement or deficiency may be relatively easy, diagnosis and treatment will likely become so involved that the most a reading teacher can hope for is an awareness of some of the symptoms of difficulty and the knowledge of proper referrals for cases which can be diagnosed and treated only by specialists. Even specialists face difficult complications because of the interrelationships of causal factors which may be physiological, psychological or environmental. The reading teachers' role

should be to determine those students' needs beyond the academic setting and to work with specialists in the treatment of their difficulties.

The purpose of this design was to discuss some of the causes and symptoms of reading disabilities of which teachers should be aware. There was no attempt to discuss the interrelationships of causes of specific cases, only to look at some of the problems as they are defined in current research.

Physiological problems. Physiological problems range from gross visual, hearing, developmental, and psychomotor difficulties to far more subtle problems in each of these areas. Reading teachers were taught to screen for difficulties in all of these areas using relatively simple instruments and observational techniques. On the basis of these surveys, students who indicated need were referred to appropriate specialists for treatment or aid.

Sociological problems. Since public schools are generally focused upon the middle class majority, any student whose background is grossly deviant from the American Middle Class Culture may have much difficulty in school adjustment and academic progress. Since most intelligence testing relies upon middle class experience, both verbal and non-verbal, the student from any minority group may seem to be retarded when he is simply lacking in experiences which facilitate the full development of his potential.

Among minorities, the economically handicapped tend to be the most educationally handicapped. Not only do members of this group suffer the highest incidence of physical difficulties related to learning, but they also tend to be handicapped by experiential difficulties.

It was quite appropriate for teachers of Title I students to spend in-service time in identifying the difficulties of students whose social problems impede academic success. Likewise, it was appropriate for them to spend time choosing appropriate instructional procedures as well as learning referral possiblilties and procedures for critical cases.

Psychological problems. Mental retardation is a severe problem for some students in the academic setting. Teachers, though, should learn that every one who does not learn in the academic setting is not necessarily mentally disabled, since environmental factors may well contribute to academic problems but can be corrected.

Individual differences in learning abilities and styles were explored by the group. Teachers were made aware of possible learning difficulties and taught to identify critical problems for referral and treatment.

Diagnostic Prescriptive Instruction

As earlier implied, specific diagnosis of reading difficulties with accompanying banks of sophistocated individual testing are inappropriate tools for the classroom

teacher whose numbers of children prevent any possiblility of a clinical approach with each student. Therefore, the classroom teachers' task becomes screening to determine instructional level and continued diagnosis and prescription based upon student performance.

Diagnostic-prescriptive instruction is based upon finding the students' current level of readiness for instruction, placing him in materials appropriate for his needs, and allowing him to proceed at his own rate in segments appropriate to his attention span. This is not to become a horizontal endeavor in that diagnosis and prescription must be repeated throughout the term of instruction.

Diagnostic-prescriptive instruction implies a level of individualization not found in most classrooms. Perhaps, this is due to the lack of teacher ability to manage an individualized program; therefore, teachers were trained and given carefully monitored practical experience in the area of management of the individualized program, taking into account each student's level and learning styles. Individualization of instruction was best managed with a wide variety of learning materials which were carefully sequenced and self-instructional in design.

Even when materials are appropriate, class size is reduced, and aides are available, teachers are likely to resist change. They may even feel that they are cheating students of the teacher's daily lecture or the student's chance to perform orally before the group. Only with careful

follow-through by supervisors and consultants within the classroom were instructional styles significantly changed.

Correcting Decoding Deficiencies

Though correcting deficiencies in decoding, word processing, and context processing could well become a separate and complete in-service thrust they will be here described in a time frame that did not allow for more in-depth study. However, it would have been extremely desirable to encourage staff to pursue this area over a longer period of time, and this area will be more completely covered another year.

A corrective reading program should deal with decoding problems or what the students need to know when "sounding out" words. For most teachers, this was perceived at first as a review of phonic rules, as well it may have become; but, the consultants pointed out the fallacies of same.

Teachers became familiar with the basic patterns of letters that represent the phonemes used in English. They needed to know those basic patterns and to recognize that the same letters may not represent the same phoneme even in the same word. Though this concept is basic to linguistic concepts found in many current reading materials, some teachers had not perceived its importance in instruction before their experience in the Title I program.

Correcting Word Processing Difficulties

Word processing skills are likely to be better known

by most classroom teachers than other areas of reading endeavor since most of this area was covered in traditional grammar; but a review of word structure, context cues, word meanings, figures of speech, and dictionary location skills as they apply to learner problems in conceptualization was appropriate.

Context Processing Difficulties

Context processing skills were reviewed along with word processing in that these areas are interdependent in students' learning the process of reading. Though words in isolation may carry a wide variety of concepts, the context carries limiting factors requiring a more sophistocated mental activity.

Though teachers often are certain that context processing is taught in their classroom, more often they have only learned to determine whether a student actually comprehends content. The area of objectives and methods for instruction and improvement of context processing served as a climax for the in-service endeavor; for, after all, the entire purpose for reading is to learn to obtain meaning from that which is read.

The development of comprehension skills is not just a component of the total area of reading, it is the purpose of reading. Deficiencies in this area then reflect total deficiency. Conversely, high level comprehension or context processing skills reflect proficiency in other components of the reading process.

Administrative Support

Administrative assistance included support given by the superintendent and his staff along with principals. The perceived need for improvement in reading instruction was evident, and the administration gave all possible assistance to the program activities. Communication with administration was maintained throughout the year through visits, memoranda and Advisory Committee Meetings.

Further support and guidance were given by the district Title I supervisor and teams from the State Department Title I Office. Washington's Title I office also contributed in planning, design and program review and evaluation.

By virtue of assignment the Title I coordinator was ultimately responsible for program development and implementation of the school system's Title I reading program. If, upon examination of process and student progress, change was deemed necessary, the Title I coordinator and the reading supervisor had the responsibility for multiple tasks to implement change.

Little could have been accomplished in a bureaucratic structure without the support of higher administration; therefore the first task was to communicate with the superintendent a need for the support of same.

In order to specify needs and to plan for curriculum development and implementation, it was necessary to organize representatives from the internal staff on all levels, along with available consultative support to explore areas of needed

improvement. Once needs were assessed, ideas for change were explored.

When need and direction for change were determined and administrative support for them had been guaranteed, it was the responsibility of the Title I coordinator and the reading supervisor to communicate that need to the total staff and to organize all resources to implement change.

Resources considered in planning for implementation were budget, administrative support, teaching personnel, supportive staff, supervisory services, and materials and equipment. Each component in the above list was critical in the implementation of language arts programs of quality and the absence of concern for any area would probably have resulted in a program weakness.

Instructional Design

The basic instructional design focused upon continuous individual testing, diagnosis, prescription, monitoring, and reinforcement. This design depended upon facilities, equipment, materials and supplies as well as enthusiastic, well-trained personnel and administrative support. Thirteen reading labs were set up in empty classrooms, basements, clinics, or any other unused space within twelve elementary schools.

Equipment and Materials

Necessary equipment purchases included tables, chairs, filing cabinets, cassette player/recorders and audio active

card readers. Other equipment such as bookcases, open files, and carrels were "homemade" from scraps of lumber, cardboard and contact paper at minimal cost. Video equipment left over from previous Title I projects was also useful in teacher training and evaluation.

Materials for instruction were chosen for utilization in a completely individualized setting; therefore, they were mostly self-instructional in design. The "core" materials were The Sound Reading Program, (Educational Achievement Corp., Waco, Texas, 1973) Series 1-2, Reading (Palo Alto, Cal., Behavioral Research Laboratories, 1969), Programmed Reading (New York, McGraw-Hill Book Co., 1968), and The Specific Skills Series (Baldwin, N.Y., Barnell Loft, Ltd., 1967), as well as materials for recreational reading. Also used, were several reading kits and other materials many of which were left over from previous projects. In order to keep costs feasible, acetate sheets and crayons were provided for student responses. Many of the materials included read-along or instructional cassette tapes which were either commercially or locally produced. Though not considered in the original design, there was dire need for self-instructional materials on the beginning levels of reading. There seemed to be nothing on the market to fill this need. Noting this problem, four programmed ABC books were developed by Dr. Glennon Rowell and Dr. Edwin Smith of The Florida State University, and the writer. The authors permitted this project to use the materials in a mimeographed format.

Scheduling

The basic design for this individualized reading activity provided for one teacher and one paraprofessional to serve up to twenty remedial reading students per fifty-minute period, six periods per day throughout the school year. Due to the lack of student population in two very small schools, one teacher and one aide spent one-half of each day in each school while one school was able to utilize two reading labs. In order to schedule such a supplementary program within elementary schools, teachers and principals worked together with the program supervisor to develop a master schedule which would provide for no interruption of the planned reading activities.

Evaluation

Both summative and formative evaluation of students and staff were used to determine the effectiveness of these highly individualized laboratories. The evaluation process was an ongoing activity and students and teachers were continually assessed through the use of both formal and informal evaluational techniques according to needs observed.

Staff evaluation included the use of two instruments which were "Program Employees Evaluation" which was locally developed with the aid of Dr. Robert Stalcup, Dean of Graduate Studies in Education, Denver University, Denver, Colorado, and "Survey of Compensatory Reading Programs Teacher Characteristics Questionaire," which was borrowed from Educational Testing Service in order to compare the teachers in this project

with the national averages.

Further teacher evaluation included analysis of video tapes made "on site" in the labs. Video taping was common in this program since it served specific in-service purposes. The technician and supervisor went to labs without previous notice to film specific activities in several locations. These were used in in-service meetings to point up to all teachers and paraprofessionals certain activities and needs as related to the program objectives.

Examples of taping purposes are reflected in the following titles: (1) Classroom Atmosphere; (2) Laboratory Organization; (3) Utilization of Bulletin Boards for Instruction; (4) Classroom Activities; (5) Monitoring Learning; and, (6) Utilization of Classroom Management.

Since taping of one's behaviors can be a very sensitive area for teachers, each was given the privilege of erasing any tape if she felt uncomfortable about sharing the results with her peers. Though all were aware of this right, none chose to exercise it.

Also, pre and post video tapes were made in the labs using the same thirty minute period in the fall and spring. The teachers were able to use these tapes to study their own progress and the changes which had taken place in their own labs.

The simplest staff evaluation technique was used by supervisors and consultants. This was a simple "on task" and "off task" count of students upon entering the classroom. One

count may not have been indicative, but cumulative data sometimes revealed a need for better classroom organization.

Student evaluation included pre and post testing with the Slosson Oral Reading Test and the Gray Oral Reading Test for the purposes of individual screening, for immediate prescription, and for program evaluation. CREAD, levels one or two, as appropriate to the students' abilities, was administered in group settings during the first week of September and in the first week of May in order to provide summative data for program evaluation.

The Maico Hearing Test and the Keystone Visual Survey were administered to all participants, and there was appropriate professional follow-up where screening indicated deficiencies. The program provided glasses for students who evidenced visual and financial need.

Other individualized tests were administered by the local school psychologist where needs were evident in the most severe areas. As a result, some lab students were removed to special classes which were more appropriate for their needs.

The most important evaluation procedure was the daily student evaluation based upon his ability to read the prescribed material. Each day's evaluation led to his next daily prescription.

Though summative data are valuable in total program evaluation, many of the less formal, formative techniques of

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evaluation proved to be extremely important in project monitoring in order to perceive needs as they occurred.

Hypotheses

The null hypotheses investigated, (separately for grades one through six) were as follows:

1. There will be no significant difference at the .05 Alpha level between the mean ratio of reading gain of remedial students who receive intensive supplementary reading instruction in the individualized setting as compared to their own previous monthly mean achievement as measured by the accuracy scores on the Gray Oral Reading Test.
2. There will be no significant difference at the .05 Alpha level between the mean ratio of reading gain of remedial students who receive intensive supplementary reading instruction in the individualized setting as compared to their own previous monthly mean achievement as measured by the accuracy scores on the Gray Oral Reading Test.
3. There will be no significant difference at the .05 Alpha level between the mean ratio of reading gain of remedial students who receive intensive supplementary reading instruction in the individualized setting as compared to their own previous monthly mean achievement as measured by the total scores on CREAD.

Design of the Study

A pretest-postest design was constructed to compare students' history of gain with treatment gain utilizing Gray

Oral Reading Test, Slosson Oral Reading Test, and CREAD. Comparisons by grade on each of the three tests were used. Correlated t-tests on means were used for treatment of these data.

Since the criterion of achievement for the program was set at one month per month of treatment mean gain for total group, such gains or better were accepted as evidence of success with this group whose history of gain is less than .5 year per year of reading instruction.

In order to determine the cost per month of gain for each grade, the number of months of pupil attendance were computed. Then the mean gain per month of special treatment by grade was determined. Next, the cost per month treatment was determined (excluding space, lighting, heating, janitorial services, and old furniture). These data yielded the cost per month gain per grade level of instruction. Secondly, the cost per month of regular instruction was determined as well as the previous mean gain per month of instruction. These data yielded a basis for cost comparison of regular program gains and special treatment gains.

Collection of Data

Data collected on each student included names, age, sex, grade level, and reading accuracy and comprehension as measured by Gray Oral Reading Test, Slosson Oral Reading Test, and CREAD. These were computed into overall grade level norms.

Further data collected on cost analysis included salaries of teachers, paraprofessions, supervisors and project administrators, consultants' fees and expenses, as well as cost of materials, equipment and supplies utilized by these thirteen reading labs.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

As the review of literature states in Chapter II, few Federally funded programs have evidenced significant change in student academic achievement. Certainly, it has been determined that more money, alone, will not make much difference in educational product.

The purpose of this study was to determine whether highly individualized learning centers for remedial reading supported by intensive in-service training and supervision could, in fact, create an environment for learning which would produce significant improvement in the ratio of reading gains at a cost that would be feasible for adaptation by local Boards or other Federally funded projects.

Data from the Gray Oral Reading Test, Slosson Oral Reading Test, and CREAD, levels 1 and 2, form A will be discussed from the view-point of statistical significance and from the point of cost analysis.

Statistical Analysis

The means of the pre and post test scores achieved on Gray Oral Reading Test by students in grades one through six are revealed in Table 1. The greatest gains were achieved by fourth and fifth grade students with the first grade students

making the least progress. Table 1 also reveals the previous achievement rates of the students except for those in first grade. It appears, from these data, that, except for first grade where no ratio had previously been established for these students, that the treatment resulted in a vastly increased ratio of gain as compared to that previously experenced.

Table 2 discloses pre and post test means achieved by students in grades one through six on the Slosson Oral Reading Test and it also reveals the previous ratio of gains made by the same students as revealed through their school records. The findings obtained through the use of the Slosson Oral Reading Test support those obtained through the Gray Oral Reading Test.

Table 3 reveals the means achieved by first through six grade pupils on the CREAD Test. It also discloses ratio of gains made of students in the treatment population during treatment and their previous ratio of gain. The findings obtained through the use of the silent reading test are quite similar to those obtained through the use of the two oral reading tests.

Tables 11, 12, and 13 in the Appendix reveal the numbers of students involved in the treatment, sums, sums of squares, standard deviations, and means obtained through the use of the three instruments.

Tables 4, 5, and 6 disclosed the pre and post test means for the six grades, the mean gains per month of treatment, and the statistical significance of the differences.

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TABLE 1

CHART SHOWING STUDENTS' MEAN PRE AND POST TEST SCORES, MEAN GAINS, MEAN GAINS PER MONTH TREATMENT, PREVIOUS MEAN GAINS PER MONTH IN SCHOOL, AND DIFFERENCE IN MEAN GAINS PER MONTH DURING TREATMENT AS MEASURED BY GRAY ORAL READING TEST AFTER EIGHT MONTH'S TREATMENT IN THE TITLE I READING LABS IN DOUGHERTY COUNTY, GEORGIA, GRADES ONE THROUGH SIX. SCHOOL YEAR 1973-74

Grade	Number	Mean Grade Equivalent		Mean Gain	Mean Months Gain Per Month Treatment	Previous Mean Gain Per Month In School	Difference In Mean Gain During Treatmen
		Pre Test	Post Test				
1	106	1.000	1.639	.639	.799	0	.799+
2	291	1.223	2.144	.921	1.151	.247	.904+
3	223	1.795	2.790	.995	1.244	.441	.803+
4	186	1.704	3.118	1.414	1.768	.261	1.507+
5	167	2.530	3.868	1.338	1.673	.425	1.248+
6	147	3.079	4.117	1.038	1.298	.462	.836+

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TABLE 2

CHART SHOWING STUDENTS' MEAN PRE AND POST TEST SCORES, MEAN GAINS, MEAN GAINS PER MONTH TREATMENT, PREVIOUS MEAN GAINS PER MONTH IN SCHOOL, AND DIFFERENCE IN MEAN GAINS PER MONTH DURING TREATMENT AS MEASURED BY SLOSSON ORAL READING TEST AFTER EIGHT MONTH'S TREATMENT IN THE TITLE I READING LABS IN DOUGHERTY COUNTY, GEORGIA, GRADES ONE THROUGH SIX. SCHOOL YEAR 1973-74

Grade	Number	Mean Grade Equivalent		Mean Gain	Mean Months Gain Per Month Treatment	Previous Mean Gain Per Month In School	Difference In Mean Gain During Treatment
		Pre Test	Post Test				
1	105	.068*	1.385	.385	.481	0	.481+
2	278	.615*	1.942	.942	1.177	0	1.177+
3	212	1.376	2.656	1.280	1.600	.208	1.392+
4	165	1.863	3.122	1.259	1.574	.319	1.255+
5	157	2.645	3.838	1.193	1.491	.456	1.035+
6	147	3.072	4.174	1.101	1.376	.460	.916+

*A score of 1.0 is considered entry level; therefore, 1.0 or lower was treated as no score.

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TABLE 3

CHART SHOWING STUDENTS' MEAN PRE AND POST TEST SCORES, MEAN GAINS, MEAN GAINS PER MONTH TREATMENT, PREVIOUS MEAN GAINS PER MONTH IN SCHOOL, AND DIFFERENCE IN MEAN GAINS PER MONTH DURING TREATMENT AS MEASURED BY CREAD TEST, FORM A AFTER EIGHT MONTH'S TREATMENT IN THE TITLE I READING LABS IN DOUGHERTY COUNTY, GEORGIA, GRADES ONE THROUGH SIX SCHOOL YEAR 1973-74

Test Level	Grade	Number		Mean Grade Equivalent		Mean Gain	Mean Months Gain Per Month Treatment	Previous Mean Gain Per Month In School	Difference In Mean Gain During Treatment
		Pre	Post	Pre Test	Post Test				
L1	Gr 1	16**	143	.6*	1.3	.3	.375	0	.375+
L1	Gr 2**	272**	310	.9*	2.0	1.0	1.250	0	1.250+
L1	Gr 3	228	204	1.5	2.4	.9	1.125	.267	.858+
L2	Gr 3	27	26	1.8	2.8	1.0	1.250	1.000	.250+
L1	Gr 4	104	99	1.7	2.5	.8	1.000	.259	.741+
L2	Gr 4	75	56	2.1	3.1	1.0	1.250	.408	.842+
L1	Gr 5	35	31	1.9	2.9	1.0	1.250	.250	1.000+
L2	Gr 5	135	113	2.5	3.5	1.0	1.250	.414	.806+
L2	Gr 6	130	122	2.7	3.6	.9	1.125	.378	.747+

*A score of 1.0 is considered entry level; therefore, 1.0 or lower was treated as no score.
**N of machine scored pre test lower because many students who were treated could not attack the test at all in September.

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TABLE 4

PRE TEST-POST TEST COMPARISONS BY GRADE AND TOTAL GROUP OF READING PERFORMANCE AS MEASURED BY THE GRAY ORAL READING TEST, AS CALCULATED AFTER EIGHT MONTHS OF TREATMENT IN THE THIRTEEN DOUGHERTY COUNTY TITLE I ELEMENTARY READING LABORATORIES DURING SCHOOL YEAR 1973-74

Grade	Number	Means		Standard Deviations		Mean Gain	t*
		Pre	Post	Pre	Post		
1	106	1.00	1.64	.000	.544	.64	12.2
2	291	1.22	2.14	.372	.951	.92	16.5
3	223	1.65	2.79	.466	.983	1.14	14.1
4	186	1.70	3.12	.820	1.284	1.41	42.4
5	167	2.53	3.87	.883	1.375	1.34	12.6
6	147	3.08	4.12	1.088	2.261	1.04	5.6
Total	1120	1.80	2.86	.954	1.522	1.06	23.4

*The significance level for all reported values of t is less than .01.

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TABLE 5

PRE TEST-POST TEST COMPARISONS BY GRADE AND TOTAL GROUP OF READING PERFORMANCE AS MEASURED BY THE SLOSSON ORAL READING TEST, AS CALCULATED AFTER EIGHT MONTHS OF TREATMENT IN THE THIRTEEN DOUGHERTY COUNTY TITLE I ELEMENTARY READING LABORATORIES DURING SCHOOL YEAR 1973-74

Grade	Number	Means		Standard Deviations		Mean Gain	t*
		Pre	Post	Pre	Post		
1	105	.003	1.38	.109	.792	1.4	17.9
2	278	.61	1.92	.621	1.060	1.3	19.9
3	212	1.38	2.66	.875	1.212	1.3	16.7
4	165	1.86	3.12	.946	1.065	1.3	18.9
5	157	2.64	3.84	1.436	1.336	1.2	11.3
6	147	3.07	4.17	1.573	2.055	1.1	6.4
TOTAL	1064	1.55	2.80	1.412	1.581	1.3	23.6

*The significance level for all reported value of t is less than .01.

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TABLE 6

PRE TEST-POST TEST COMPARISONS BY GRADE AND LEVEL OF READING PERFORMANCE AS MEASURED BY THE CREAD TEST, FORM A, AS CALCULATED AFTER EIGHT MONTHS OF TREATMENT IN THE THIRTEEN DOUGHERTY COUNTY TITLE I ELEMENTARY READING LABORATORIES DURING SCHOOL YEAR 1973-74

Test Level	Grade	Number		Means		Standard Deviations		Mean Gain	t**	df***
		Pre	Post	Pre	Post	Pre	Post			
1	1	16*	143	.60	1.30	.000	.576	.70	5.7	78
1	2	272*	310	.90	1.96	.643	.925	1.06	15.5	290
1	3	228	204	1.49	2.39	.777	.949	.90	13.7	203
2	3	27	26	1.79	2.87	.589	.652	1.08	8.8	25
1	4	104	99	1.66	2.53	.643	.753	.87	11.4	98
2	4	75	56	2.10	3.07	.828	.828	.97	8.8	55
1	5	35	31	1.92	2.91	.708	.868	.99	3.4	30
2	5	135	113	2.52	3.51	.736	1.133	.99	5.0	113
2	6	130	122	2.73	3.60	1.020	1.074	.87	4.6	121

*The N of these tests are lower than for the post test because some students were unable to attack the test in September.

**The significance level for all reported values of t is less than .01.

***The degrees of freedom for grades 1 and 2 are the averages of the respective pre-and post-N's. Others are based upon the N for the post test.

With all grades the differences in achievement would not occur by chance once in one hundred times.

The most important indicator of the significance of the gains in achievement during the treatment period is the comparison of the actual gains made by children to the criterion gains which had been specified at the outset of the project. The criterion gain--one month of gain for each month of treatment--was achieved except in the first grade. Those gains were especially significant to the school system because, for the first time, the project children were making substantial progress in the development of reading skills.

Further analyses of the data (in addition to the purely descriptive analyses comparing the obtained gains with the criterion gains) were performed to demonstrate that gains in achievement which were made were significant in respect to a statistical criterion--specifically, that the amount of gain was greater than what might be attributed to chance. In order to determine the statistical significance of the gains correlated t statistics were computed for each of the measures of achievement and for each grade group one through six.

The data which were used in these computations were the pretest and posttest grade equivalency scores on the Gray Oral Reading Test, the Slosson Oral Reading Test, and the CREAD, Form A. History of gain was determined by dividing test scores, by the mean number of months previously enrolled in school. For this comparison, 1.0 grade equivalent was

considered entry level; therefore, only scores above that level were treated. For example, history of gain for a third grade mean grade equivalent pre test score of 1.795 was determined by dividing .795 by 18 months, yielding a history of .441 months, gain per month in school. Since this was a transition from grade equivalent to per month gain the decimal was moved one place in the computation. Computation of the statistics was performed manually and a standard formula for the Correlated t test was used. Specifically, the formula--

$$T = \frac{\Sigma D}{\sqrt{\frac{N \cdot \Sigma D^2 - (\Sigma D)^2}{N - 1}}}$$

--was used.

In this formula N corresponds to the number of children in the particular sample and D corresponds to the pretest-posttest gain for individual students in the sample. The correlated t is the appropriate statistic to use to test significance of gain in the present research because the pretest and posttest data are assumed to be correlated.

Modifications in the computational procedures were required for the CREAD data significance tests. A substantial number of the children in grade one and some of those in grade two were unable to attack the test at the time of the pre administration. Accordingly, a measure of gain for those children and a subsequent test of significance of such gain using the t formula which is listed above is inappropriate. (Because both pre-and post-test scores are required

to compute gain.) To overcome this problem the pretest mean score for those children in the sample who received scores on that test was substituted for the missing score for those persons who were unable to attack the pretest because it was the lowest possible score. The resulting mean gain probably is less than might reasonably be expected if scores could have been included which actually reflected levels of achievement. There is no reason to believe that children who could not attack the test had achieved levels as great as those reflected by the mean score. Therefore, the resulting statistical test should be more conservative than if scores had been obtained from all children. Furthermore, because the significance levels are so great, the absence of pretest scores and the subsequent modification in the procedure seems to present no problem with the interpretation of gains as statistically significant.

For grades three through six, only those persons who have both pre and post scores were used in the computation of the t statistics.

The summary results of the descriptive and statistical data analyses for the Gray Oral, the SORT, and the CREAD are presented in Tables 4, 5, and 6 respectively. Those data reveal that all gains, whether by grade or for the total group, are, indeed, statistically significant when compared to the criterion for significance--i.e., the probability of chance occurance of such gains is less than .05 (Actually, all gains were significant at levels beyond .01.) On the

basis of statistical analyses of the data, hypotheses 1, 2, and 3 were rejected.

Cost Analysis

After close examination of the results of the treatment the question arose, "Is such a program dollar feasible?" That is, in terms of results, "Does the taxpayer get more or less educationl gain with his school children by implementing such a program?" As discussed in chapter I, the answer has been in general, that the results have not justified the increased expenditures; and, with disadvantaged children, the amount of additional money spent for compensatory education could not be justified in terms of tested educational gains. Thus, the assumption that supplementary educational monies alone will result in an improved educational program must be rejected. However, it may be assumed that an educational program that requires supplementary funds and which meets the needs of the target population is dollar feasible. Although the dollar feasibility of a program cannot be determined through philosophy, program design, or goals and objectives. It is only through the analysis of the outcomes of programs for compensatory education and relating those outcomes to costs that accurate estimates of dollar feasibility may be made. It was with this in mind that the gain data and cost data were studied.

The results of the treatment revealed that it was highly successful in bringing about both practical and significant changes in rates of reading development. However, it

was a costly enterprise requiring a per pupil expenditure of $24.38 a month for reading instruction. This was in addition to the $16.00 cost for the schools' regular reading program. Table 7 discloses the additional educational expense for the compensatory education reading program.

At first study the cost appears high. However, when cost-product is studied a different picture emerges. As revealed in Table 8 the cost per month of reading gain as tested with the Gray Oral Reading Test was much less than that of regular treatment. For example, in grade two, with the treatment, it cost $29.69 less per month of gain than each month of gain in the regular program. In grade four it cost $38.46 less per month of gain with the treatment than without the treatment.

Table 9 reveals the cost per month of gain with treatment and without treatment using gain as measured with the Slosson Oral Reading Test. The findings are similar to those in which the Gray Oral Reading Test was used as the test instrument.

Table 10 discloses the cost per month of gain with treatment and without treatment when the silent reading test, the CREAD Test is used as the instrument for measurement. It will be noted that one third grade group of twenty-seven students did not bear out cost data as this was their second year of treatment and they were already on grade level in September of 1973. The results, using the data gathered from three different reading test, are similar allowing the con-

clusion that when reading education gain, rather than time in school, is used as the criteria, then, in this particular program, it did cost less to teach more.

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TABLE 7

CHART SHOWING TITLE I EXPENDITURES FOR THIRTEEN READING LABORATORIES SERVING GRADES 1 THROUGH 6 IN DOUGHERTY COUNTY SCHOOLS, ALBANY, GEORGIA, SCHOOL YEAR 1973-74

Instructional Materials	Cost	Totals
Teacher Supplies	$ 260.00	
Consummable Instructional Materials	15,740.00	
Reusable Instructional Materials ($7,565÷3)	2,522.00	
		$ 19,583.00
Personnel (Salary and Fixed Charges)		
Supervision	$ 11,647.00	
Teachers	136,833.00	
Aides	59,352.00	
Clerical	2,000.00	
		$ 209,832.00
Teacher Training		
Consultants (Fees and Equipment	$ 11,800.00	
Materials	500.00	
		$ 12,301.00
Equipment		
13 Listening Stations @60.00	$ 780.00	
65 Cassette Player-Recorders @45.00	2,925.00	
13 Audio-Active Card Reader @150.00	1,950.00	
52 Tables @35.00	1,820.00	
312 Chairs @ 7.50	2,340.00	
13 Filing Cabinets @45.00	585.00	
Video Equipment	10,000.00	
	$ 20,400.00	
Total Per Yr. Cost (5 yr. average life)		$ 4,080.00
Total Program Cost		$ 245,796.00
Total Months Treatment		10,080.00
Program Cost Per Month Treatment		$ 27,311.00
Cost Per Student Per Month Treatment		$ 24.38

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TABLE 8

CHART SHOWING THE PREVIOUS MEAN GAIN PER MONTH IN SCHOOL, THE MEAN GAIN PER MONTH OF TREATMENT, THE DIFFERENCE IN MEAN GAIN, THE PREVIOUS COST PER MONTH OF MEAN GAIN IN REGULAR TREATMENT, THE COST PER MONTH GAIN DURING TREATMENT, AND THE DIFFERENCE IN PER MONTH COST USING PRE AND POST TEST SCORES ON GRAY ORAL READING TEST IN THIRTEEN TITLE I READING LABORATORIES IN GRADES 1 THROUGH 6 IN ALBANY, GEORGIA, DURING THE 1973-74 SCHOOL YEAR.

Grade	Previous Mean Gain Per Month In School	Mean Gain Per Month Treatment	Difference In Mean Gain During Treatment	Previous Cost Per Month Mean Gain Regular Treatment*	Cost Per Month Mean Gain During Treatment**	Difference Per Month Gain Cost
1	0	.799	.799+	No History	$ 50.54	NA
2	.247	1.151	.904+	$ 64.77	35.08	$ 29.69-
3	.441	1.244	.803+	36.28	32.46	3.82-
4	.261	1.768	1.507+	61.30	22.84	38.46-
5	.425	1.673	1.248+	37.64	24.14	13.50-
6	.462	1.298	.836+	34.63	31.11	3.52-

Regular Program Cost Per Month	$ 16.00
Treatment Cost Per Month	24.38
Total Language Arts Cost Per Month	$ 40.38

*$ 16.00 divided by previous mean gain.
**$ 40.38 divided by mean gain during treatment.

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TABLE 9

CHART SHOWING THE PREVIOUS MEAN GAIN PER MONTH IN SCHOOL, THE MEAN GAIN PER MONTH OF TREATMENT, THE DIFFERENCE IN MEAN GAIN, THE PREVIOUS COST PER MONTH OF MEAN GAIN IN REGULAR TREATMENT, THE COST PER MONTH GAIN DURING TREATMENT, AND THE DIFFERENCE IN PER MONTH COST USING PRE AND POST TEST SCORES ON SLOSSON ORAL READING TEST IN THIRTEEN TITLE I READING LABORATORIES IN GRADES 1 THROUGH 6 IN ALBANY, GEORGIA, DURING THE 1973-74 SCHOOL YEAR.

Grade	Previous Mean Gain Per Month In School	Mean Gain Per Month Treatment	Difference In Mean Gain During Treatment	Previous Cost Per Month Mean Gain Regular Treatment	Cost Per Month Mean Gain During Treatment	Difference Per Month Gain Cost
1	0	.481	.481+	No History	83.95	NA
2	0	1.177	1.177+	-16.00*	34.31	$ 50.31-
3	.208	1.600	1.392	$ 76.92	25.24	51.68-
4	.319	1.574	1.255	$ 50.15	25.65	$ 24.50-
5	.456	1.491	1.036	$ 35.08	27.08	$ 8.00-
6	.460	1.376	.916	$ 34.78	29.35	$ 5.43-

Regular Program Cost Per Month $ 16.00
Treatment Cost Per Month 24.38
Total Language Arts Cost Per Month $ 40.38

*Since multiplication by "0" was not feasible the -$ 16.00 was used to indicate monthly expenditure for no gain.

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TABLE 10

CHART SHOWING THE PREVIOUS MEAN GAIN PER MONTH IN SCHOOL, THE MEAN GAIN PER MONTH OF TREATMENT, THE DIFFERENCE IN MEAN GAIN, THE PREVIOUS COST PER MONTH OF MEAN GAIN IN REGULAR TREATMENT, THE COST PER MONTH GAIN DURING TREATMENT, AND THE DIFFERENCE IN PER MONTH COST USING PRE AND POST TEST SCORES ON CREAD TEST IN THIRTEEN TITLE I READING LABORATORIES IN GRADES 1 THROUGH 6 IN ALBANY, GEORGIA, DURING THE 1973-74 SCHOOL YEAR

Level	Grade	Previous Mean Gain Per Month In School	Mean Gain Per Month Treatment	Difference In Mean Gain During Treatment	Previous Cost Per Month Mean Gain Regular Treatment	Cost Per Month Mean Gain During Treatment	Difference Per Month Gain Cost
L1	1	0	.375	.375+	No History	$ 107.68	NA
L1	2	0	1.250	1.250+	-16.00 **	32.30	$ 48.30-
L1	3	.267	1.125	.858+	59.92	35.89	24.03-
L2	3	1.000	1.250	.250+	16.00	32.30	16.30+*
L1	4	.259	1.000	.741+	61.78	40.38	21.40-
L2	4	.408	1.250	.842+	39.22	32.30	6.92-
L1	5	.250	1.250	1.000+	64.00	32.30	31.71-
L2	5	.414	1.250	.806+	38.65	32.30	6.35-
L2	6	.378	1.125	.747+	42.33	35.89	6.44-

Regular Program Cost Per Month $ 16.00
Treatment Cost Per Month 24.38
Total Language Arts Cost Per Month $ 40.38

*Student's second year in Program who are likely near potential.
**Since multiplication by "0" was not feasible the -$ 16.00 was used to indicate monthly expenditure for no gain.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this study was to determine the cost per grade level of reading achievement of elementary students utilizing the center concept and individually prescribed instruction. Its specific purpose was to determine the feasibility of the cost input of such a program for the educationally disadvantaged as related to the educational output as measured by pre and post testing utilizing the Slosson Oral Reading Test, the Gray Oral Reading Test, and CREAD, as well to determine the ratio of reading gain attributable to special treatment.

Summary

The subjects in this study included 1120 Title I students, grades one through six, in thirteen reading laboratories in twelve Title I elementary schools in Albany, Georgia. Each reading center was staffed by one teacher and one paraprofessional. The case loads ranged from eighty to one hundred and twenty students per day. Each student received fifty minutes of instruction daily in a classroom organization that offered a high level of individualization through daily diagnosis and prescription utilizing programmed and self-instructional materials with the teacher and aides constantly monitoring progress. Teachers were supervised and trained by one full-time

reading supervisor and outside consultants. In-service workshops included over eighty hours of training.

Students were pre tested in September and post tested after eight months of treatment in the first week of May. Data from these tests were treated using the correlated t-test to determine level of significance of mean gains by grade level. Costs of regular program and treatment costs were calculated and comparisons of cost per month of student gain were made.

Conclusions

The following conclusions were drawn within the limitations of the study:

1. There was a significant difference at the .01 Alpha level or better between the mean ratio of reading gain of remedial students who received intensive supplementary reading instruction in an individualized setting as compared to their own previous reading achievement as measured by the accuracy scores on the Gray Oral Reading Test in grades one through six, separately treated.
2. There was a significant difference at the .01 Alpha level or better between the mean ratio of reading gain of remedial students who received intensive supplementary reading instruction in an individualized setting as compared to their own previous reading achievement as measured by the accuracy scores on the Slosson Oral Reading Test in grades one through six, separately treated.

3. There was a significant difference at the .01 Alpha level or better between the mean ratio of reading gain of remedial students who received intensive supplementary reading instruction in an individualized setting as compared to their own previous reading achievement as measured by the accuracy scores on the CREAD Levels one or two, Form A in grades one through six, separately treated.
4. It was far less expensive when cost was compared to reading gain as measured by Gray Oral Reading Test, Slosson Oral Reading Test, and CREAD, than was the regular program.

Implications

1. It may be that the present commonly used measures of educational cost reveal only how much it cost to keep a student in school, and do not reveal how much it cost to teach the student.
2. When additional monies have been spent for testable educational programs these monies should be justified by hard data indicating that they have resulted in measurable educational improvement beyond that which has resulted in the regular program.
3. In the easily tested skill areas such as reading and mathematics all specially funded programs should be required to demonstrate dollar feasibility in terms of educational gains.
4. Prior to special funding accurate estimates of per pupil cost in the special programs should be determined and a

plan for determining the cost-educational gain should be approved by the funding agency.

5. It can cost less to achieve more.

Recommendations for Further Research

1. This study should be replicated using the 1974 dollar as the constant dollar to see if costs decreases over the years.
2. By funding requirements the classes used in this study were limited to 20 students. The study should be replicated using 25 students to a class to determine if the 25% increase in students would affect educational gain and educational cost per gain.
3. The program was not successful with all of the students. A study should be made to determine the similarities and differences between those for whom the program succeeded and for those for whom the program was a failure.
4. The program, modified for regular self-contained classroom usage, and budgeted for five dollars per month increased expenditure per student, should be tested in inner city schools.

APPENDIX

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TABLE 11

CHART SHOWING NUMBER OF STUDENTS TESTED PER GRADE AND TEST LEVEL, SUMS OF SCORES, SUM OF SQUARES TESTS, STANDARD DEVIATIONS, AND MEANS ON PRE AND POST TESTS USING GRAY ORAL READING TEST. THESE SCORES REPRESENT RESULTS BEFORE AND AFTER EIGHT MONTHS TREATMENT IN THIRTEEN TITLE I READING LABORATORIES IN DOUGHERTY COUNTY, GEORGIA SCHOOL YEAR 1973-74

Grade	Number	Sums		Sums of Squares		Standard Deviation		Means	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	106	106.00	173.75	106.00	316.19	0	.544	1.0000	1.6392
2	291	355.75	623.80	475.14	1,600.28	.372	.951	1.2225	2.1436
3	223	367.00	622.25	652.37	1,951.97	.466	.983	1.6457	2.7904
4	186	317.00	533.70	665.37	1,837.89	.820	1.284	1.7043	3.1178
5	167	422.50	645.95	1,199.21	2,814.20	.883	1.375	2.5299	3.8680
6	147	452.65	605.15	1,567.74	3,242.81	1.088	2.261	3.0793	4.1167
Totals	1120	2,020.90	3,204.60	4,665.83	11,763.34	.954	1.522	1.804	2.861

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TABLE 12

CHART SHOWING NUMBER OF STUDENTS TESTED PER GRADE AND TEST LEVEL, SUMS OF SCORES, SUM OF SQUARES TESTS, STANDARD DEVIATIONS, AND MEANS ON PRE AND POST TESTS USING THE SLOSSON ORAL READING TEST. THESE SCORES REPRESENT RESULTS BEFORE AND AFTER EIGHT MONTHS TREATMENT IN THIRTEEN TITLE I READING LABORATORIES IN DOUGHERTY COUNTY, GEORGIA. SCHOOL YEAR 1973-74

Grade	Number	Sums		Sums of Squares		Standard Deviation		Means	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	105	7.10	145.40	1.70	266.00	.109	.792	.0026	1.38
2	278	170.90	534.90	211.42	1,342.77	.621	1.060	.6147	1.92
3	212	291.70	563.00	562.12	1,803.79	.875	1.212	1.3759	2.6557
4	165	307.32	515.10	718.40	1,793.06	.946	1.065	1.8625	3.1218
5	157	415.20	602.50	1,421.79	2,588.72	1.436	1.336	2.6446	3.8376
6	147	451.60	613.50	1,746.00	3,181.34	1.573	2.055	3.0721	4.1735
Totals	1064	1,643.82	2,974.40	4,661.43	10,975.68	1.412	1.581	1.545	2.795

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TABLE 13

CHART SHOWING NUMBER OF STUDENTS TESTED PER GRADE AND TEST LEVEL, SUMS OF SCORES, SUM OF SQUARES TESTS, STANDARD DEVIATIONS, AND MEANS ON PRE AND POST TESTS USING THE CREAD TEST, FORM A. THESE SCORES REPRESENT RESULTS BEFORE AND AFTER EIGHT MONTHS TREATMENT IN THIRTEEN TITLE I READING LABORATORIES IN DOUGHERTY COUNTY, GEORGIA. SCHOOL YEAR 1973-74

Test Level	Grade	Number		Sums		Sums of Squares		Standard Deviation		Means	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
L1	Gr 1	16*	143	9.6	131.4	5.76	204.16	.000	.576	.60	1.30
L1	Gr 2*	272*	310	69.9	572.4	94.51	1,371.08	.643	.925	.90	1.96
L1	Gr 3	228	204	248.6	485.5	470.38	1,343.21	.777	.949	1.49	2.39
L2	Gr 3	27	26	48.2	74.5	95.06	224.09	.589	.652	1.79	2.87
L1	Gr 4	104	99	166.4	250.7	317.86	690.49	.643	.753	1.66	2.53
L2	Gr 4	75	56	157.3	171.9	380.59	565.37	.828	.828	2.10	3.07
L1	Gr 5	35	31	65.2	90.3	141.58	285.04	.708	.868	1.92	2.91
L2	Gr 5	135	113	332.9	396.9	910.45	1,537.77	.736	1.133	2.52	3.51
L2	Gr 6	130	122	352.2	436.0	1,094.70	1,709.58	1.020	1.074	2.73	3.60

*N of machine scored pre test lower because many students who were treated could not attack the test at all in September.

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VITA

Virginia Richardson Morgan was born September 4, 1930, in Albany, Georgia.

Mrs. Morgan received her Bachelor of Fine Arts degree in the area of theatrical production and design from Weslyan Conservatory of Music and Fine Arts and her Master of Education degree from Auburn University. Other graduate study was done at Mercer University, Georgia College for Women, and The University of Georgia.

While pursuing graduate credits, Mrs. Morgan has worked as a sixth grade teacher, an elementary principal, director of several Federal projects, and is currently employed as Federal projects director in the Dougherty County School System, Albany, Georgia.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

NOV 25 1974

Superintendent Paul B. Robertson
Dougherty County School Board of Education
601 Flint Avenue
Albany, Georgia 31701

Dear Superintendent Robertson:

Last Spring the State educational agency nominated your Title I project as an exemplary project in your State. The project description and evaluation data were screened by the appropriate Title I regional program specialist and reviewed by various persons within the Office of Education. Site visits were made to those projects which were tentatively identified to be successful. Your project was then submitted to the Office of Education Dissemination Review Panel for approval for dissemination.

We are very pleased to inform you that your project has been validated as an exemplary project by the United States Office of Education. Information about your project will be disseminated to all State educational agency Title I coordinators. You should certainly consider it an honor to have your Title I project judged exemplary considering the number originally nominated and the few finally determined to be exemplary.

We wish to extend congratulations to you and your staff for the hard work and capable leadership. We appreciate your cooperation in this endeavor and also your efforts on behalf of the disadvantaged children of this Nation.

Sincerely yours,

Robert R. Wheeler

Robert R. Wheeler
Acting Deputy Commissioner
for School Systems

cc: Title I Coordinator
State Title I Coordinator

College of Education
Division of Instructional Design
and Personnel Development
Instructional Design and
Development Program

The Florida State University
Tallahassee, Florida 32306

12-13-74

Dr. Virginia Morgan
Dougherty County Schools
P.O. Box 1470
Albany, Georgia

Dear Dr. Morgan:

Thank you again for a busy and exciting day. I can see now why yours has been declared an exemplary program. I wish it could be expanded to the entire curriculum, and I wish that all children could have such an experience.

The enclosed brief draft report is for your comment and/or correction. Please feel free either to scribble all over it and return it, or to send your comments separately. In the latter case, I don't need this copy back.

This is my last trip report on the project. Now I need to review all of Dennis' reports next week, and start organizing and digesting. I don't know how I can capture all I'd like to in 100 pages, but that is my task.

Dr. Gagne knows of my project, and he has asked if I can brief the Leon County Superintendent and staff on my findings. Your program will certainly be including in such a briefing.

The organization of my final report is, of course, now unclear, but in any event some account of your program will be included. So you might review the enclosed draft as if for publication, although it might have to be condensed later.

Please be free to correct either the facts or the flavor of the report.

Sincerely,

Leslie J. Briggs
Professor

P.S. I just had a call from the FSU Public Information Office on the relation of my project to my visit with you. He also asked for my impressions, which coincide with the attached report. I guess this will be a newspaper release.

Enclosure

LJB/alp

Report of Visit

Dougherty County Schools, Albany, Georgia

Key Personnel: Dr. Virginia Morgan, Title I Individualized Instruction Project Director

Annette Hopson, Reading Supervisor

Schools Visited:

Elementary

Sylvandale Primary (2-3)
St. Teresa (K-8)
Highland Elementary (1-6)

Junior High

Carver (7-9)
River Road (7-9)
Southside (7-9)

Program Description

This is a Title I program in reading skills for the most disadvantaged children whose tested reading level is far below grade norms. The selected children go to the Title I classroom for 50 minutes per day of individualized instruction as a supplement to the basic reading/language arts program carried on by regular teachers.

There is one such Title I classroom in each of 16 schools. Each of the 16 teachers, assisted by a paraprofessional, teach on the average of 102 students per day in groups not exceeding 17 pupils each.

These 16 teachers had an initial workshop on how to conduct the program, supplemented by continuing in-classroom training and assistance by consultants and supervisors.

Pupils are selected for the program on basis of reading test scores and recommendations of teachers. Some pupils stay a year or more in the special program. Others make up their deficiencies and reach grade norm in less than a year. Students may enter and leave the program anytime during the year. Some beg to stay longer, but they are told that they are now capable of handling the regular curriculum and others less well off need to enter the special program. It is striking that some children achieve 2 or 3 years gain in skills in a one-year period or even less.

The program operates by individual diagnosis and prescription. This enables teachers to assign tasks that children need and are ready to master. A permanent record card, K-8, is used to record mastery of skills listed on the card. While there is a general orderly pattern of progression from elementary to advanced reading skills, this program is by no means a linear, lock-step, pattern. Teachers have found that different children can progress by somewhat different sequences of prescriptions. They see options in sequencing as well as in materials.

A prescription sheet enables the teacher to plan the work for each child for as much as a week at a time. The child learns to locate the assigned materials by reading the codes written by the teacher on the prescription sheet.

Sometimes the assigned materials are programmed instruction booklets, but sound tapes are also used, as are books for reading for pleasure.

New children receive small group instruction on how to follow the prescriptions and how to locate materials and operate sound recorders and other simple machines. The younger ones, of course, require more help in these matters than do older children, but all soon learn to do these things without help, thus allowing teachers and aides to concentrate on giving academic help rather than procedural help.

It is of interest to note that the same materials are used in different ways for different pupils. A programmed text, once familiarization on use of sliders, etc., is achieved, enables some students to complete a prescription and test with no direct help from the teacher. Other children must be led through a page or more of frames repeatedly, both so they learn the procedure and learn the reading skill. Some children will receive such personal tutoring several times during an hour; others need no such help.

Once accustomed to the system, both teachers (and aides) and pupils are enthusiastic about the system. Several teachers said they would not consider returning to the conventional mode of teaching. Only three teachers have left the system in three years of operation, and two of those were guided out of the system, and the third loss was due to relocation of the husband into a different job.

Results

This program has been validated by USOE as one of only a half a dozen exemplary Title I programs.

Achievement test results summarized by Dr. Morgan show that cost per month of the regular program was $16.00 and the special program was $24.38 per month. But when mean gains in acheivement per month are considered, the special program actually costs less than the regular program. Dr. Morgan concluded that it "costs less to teach better when cost is based upon amount of reading gain per dollar of expenditure".

Dr. Morgan pointed out that since the special program is supplementary to the regular program, the results cannot be generalized to other contexts.

The above results should be considered in light of the <u>costs of failure</u>, in terms of human misery, dropouts, delinquency, crime, unemployment, and the cost of keeping a person in prison. This latter cost is higher than the cost of both a regular and a supplementary school program.

In terms of happy children, this program is priceless. They <u>do</u> succeed and they are made happy by realizing that they can succeed. Considering the gross retardations these children enter with, as compared to grade norms, their progress is not only rapid, but also great. Many literally go from failure to success in one year or less.

Are these results due only to the materials and procedures employed? Certainly not! These dedicated teachers work tirelessly (though tired) for many hours per day, handling a different group each hour, apart from modest planning time. They grapple with the entering children who are discouraged, unhappy, and totally retarded in achievement, and they help them to become successful, self confident, and eager to learn more. Even though some children will pass and fail the identical word time after time before mastery, they do learn and they do progress, often at rates that are surprising considering their entry level. But even if they never progress at normal rates, they do progress, and they will leave school with at least a minimum of literacy.

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Some Quotes from Teachers and Supervisors

"I'm no longer making time but not making any difference."

"I'd quit before I went back to trying to teach the same thing at the same time to the entire group."

"They will never be scholars but they won't be illiterate."

"If I had never seen an elephant I probably wouldn't make much of the picture either."

"Seventy percent of these kids did not even know there is a zoo in town, and almost none had been there. So we took them to the zoo."

"When I quizzed one child about a picture and story about an 'O'possum', he said, 'He looks mighty like a 'possum to me'".

"We use some adult basic reading material. These kids aren't interested in Tinker Bell. They are realists and they have needs and dreams. They wonder what it would be like to have all you want to eat, or to own a car or a home, or have a good job, or have five dollars."

"His mother told him to hurry up with his prescription so he could bring a new little book home. She had already finished the one he brought home."